

### **Remarks/Arguments**

The Office Action mailed May 8, 2007 has been carefully considered. Reconsideration of the claims is requested in view of the following remarks.

Claim 1 has been amended for clarification. No new matter has been added.

### ***Rejections Under 35 U.S.C. 103(a)***

The rejection of Claims 1-6 and 20-23 under 35 U.S.C. 103(a) as obvious over Woodrum (US 5,997,690), taken in view of Akers (US 5,607,550) is respectfully traversed.

To begin with, Woodrum does not describe, either expressly or inherently, all the elements of the web recited in claim 1. See generally MPEP § 2131 (indicating that a reference must describe every element of a claim, expressly or inherently).

Woodrum generally describes a web made of a fiber and water-insoluble, water-swallowable, superabsorbent, ion sensitive polymer particle (SAP) containing slurry, combining the slurry with a water solution containing a salt to form a furnish, washing the wet web in-line with water, and drying the web. Water-insoluble, water-swallowable, superabsorbent, ion sensitive polymer particles are neutralized and internally crosslinked in order to be superabsorbent.

In contrast to the web disclosed in Woodrum, claim 1 of the present application recites a web comprising a wet-laid web of a *particulate pre-superabsorbent polymer*; neutralization agent to neutralize the *particulate pre-superabsorbent polymer* to at least 25mol%, fiber, and water wherein the ratio of the pre-superabsorbent polymer to fiber is from about 30:70 to about 40:60.

With all due respect to the Examiner, a *particulate pre-superabsorbent polymer* **is not a water-insoluble, water-swellaable superabsorbent ion sensitive polymer particle**. These terms are defined in the present application wherein preSAP is defined on page 2 lines 15-19, and SAP is defined on page 3, lines 1-5. A water-swellaable superabsorbent polymer absorbs over 50 times its weight in water, whereas a pre-superabsorbent polymer may absorb a minor amount of water or may be nonswellaable absorbent, and which is capable, upon neutralization, of becoming a SAP. The differences between the superabsorbent polymer of Woodrum and the pre-superabsorbent polymer of the present invention appear in the differences of the processes disclosed in Woodrum and the present invention.

By definition of superabsorbent polymer as set forth above, the **water-insoluble, water-swellaable superabsorbent ion sensitive polymer particle** of Woodrum must swell over 50 times its weight upon mixture with the slurry of water and salt during the wet-laid process as set forth in Woodrum. The addition of the **water-insoluble, water-swellaable superabsorbent ion sensitive polymer particle** of Woodrum results in an excessively heavy and thick slurry, resulting in very poor flowability properties. In contrast to Woodrum, the *particulate pre-superabsorbent polymer* of the present application by definition swells very little or does not swell when mixed with water, which does not contain a salt, in the wet-laid process as set forth in the present application, thereby allowing the *particulate pre-superabsorbent polymer* of the present application to be mixed into a slurry with fiber and tap water without swelling of the *particulate pre-superabsorbent polymer*.

The slurry of the SAP, fiber, water and salt as set forth in Woodrum requires extensive drying to remove the excessive water from the slurry that includes over 50 times the water weight to the weight of the SAP. On the other hand, the slurry of the water, fiber, and *particulate pre-superabsorbent polymer* is vacuumed to remove the moisture, which is significantly less than that of Woodrum. The dry *particulate pre-superabsorbent polymer* is then

treated with the neutralization agent to form the water-swellaable superabsorbent polymer in the dry state. As the Examiner may well appreciate, swelling the superabsorbent polymer and drying the swollen superabsorbent polymer as disclosed by Woodrum is very different than being able to make the web without swelling the superabsorbent polymer.

Woodrum together with Akers do not describe, either expressly or inherently, all of the elements of the web recited in claim 1. Furthermore, there is no suggestion, teaching, or motivation to modify the Woodrum reference to include all of the elements, e.g., the *particulate pre-superabsorbent polymer*, of the claimed invention, or the ratio of particulate superabsorbent polymer to fibers; and there is clearly no indicated, reasonable expectation of success in attempting to modify Woodrum to arrive at the present invention. Woodrum fails to disclose, teach, or suggest either a wet-laid web of a particulate pre-superabsorbent polymer, or that the ratio of the particulate pre-superabsorbent polymer to fiber is from about 30:70 to about 40:60. Moreover, Akers does not remedy these deficiencies of Woodrum. See MPEP § 2143 (reciting the required three basic criteria for establishing a prima facie case of obviousness.) Akers fails to disclose, teach, or suggest either a wet-laid web of a particulate pre-superabsorbent polymer, or that the ratio of the particulate pre-superabsorbent polymer to fiber is from about 30:70 to about 40:60.

In addition, the Examiner has failed to point out a reason why one skilled in the art would specifically include the ratio of superabsorbent polymer to fiber as presently claimed. See *KSR Int'l Co. v. Teleflex, Inc.*, No. 04-1350, slip op. at 14-15 (U.S. Apr. 30, 2007) (the Supreme Court explaining that there must be “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does,” and indicating that this reason must be “apparent”). In addition, reference is made to the Memorandum to Technology Center Directors of May 3, 2007 issued by Margaret A. Focarino Deputy Commissioner for Patent Operations, wherein it is concluded “[t]herefore, in

**formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.”**

The Examiner asserts in the Office Action that “[a] skilled artisan not concerned with the incorporation, as fibers, as opposed to particulates, in the absorbent web would not be led away from the claimed invention following the teachings of the reference to Akers for the reasons set out in the Office Action.” With all due respect to the Examiner, this position expressed in the Office Action is contrary to the disclosures specifically made in Woodrum and Akers.

Akers discloses in the Background Art references directed to using particulate matter in nonwoven applications. Specifically, Akers discloses the advantages of using fibers and not using particulate superabsorbent polymer as follows:

The use of fibres of the water-swellaable water-insoluble superabsorbent polymer, rather than the same polymer in particulate form, has significant advantages in many respects. The superabsorbent polymer fibres are more securely retained both during formation of the wet-laid nonwoven fabric and when the fabric is in use as an absorbent product. Uniform dispersion of the superabsorbent polymer is facilitated. The superabsorbent polymer fibres become part of the fibrous structure of the nonwoven fabric and contribute towards its cohesive strength, whereas the presence of superabsorbent polymer particles reduces the strength of the nonwoven fabric. (col 1 lines 51-63).

Akers clearly sets forth that one skilled in the art is very concerned with whether particulate superabsorbent polymer or superabsorbent polymer fibers are used in a wet-laid nonwoven fabric based on the advantages of using superabsorbent polymer fibers and disadvantages of using particulate superabsorbent polymer. Based on the teaching of Akers, one skilled in the art would use superabsorbent polymer fibers and not particulate superabsorbent

polymer in wet-laid applications as suggested by the Examiner. Hence, the specific disclosure of Akers contradicts the statement in the Office Action “[a] skilled artisan not concerned (sic) with incorporation, as fibers, as opposed to particulates, in the absorbent web would not be led away from the claimed invention following the teachings of the reference to Akers for the reasons set out in the Office Action.

Woodrum also teaches that one skilled in the art is concerned about using superabsorbent polymer fibers or particulate superabsorbent polymer in wet-laid applications. Woodrum cites Akers for the proposition “that incorporation of superabsorbent, ion sensitive polymers in particulate form in the fiber web has significant disadvantages in many respects.” Woodrum specifically states:

The use of fibers of water-swellaable water-insoluble superabsorbent, ion sensitive polymer is disclosed in U.S. Pat. No. 5,607,550, wherein it is taught that incorporation of superabsorbent, ion sensitive polymers in particulate form in the fiber web has significant disadvantages in many respects. The prior art teaches that superabsorbent, ion sensitive polymer particles are less securely retained both during formation of the wet-laid nonwoven structure and when the structure is in further processed during incorporation into an absorbent product. Moreover the art indicates a relatively less uniform dispersion of superabsorbent, ion sensitive polymer particles in the web occurs as opposed to the dispersion of the SAP fiber in the web. It is also taught conventionally that with superabsorbent, ion sensitive polymer particle-impregnated structures, the particles become loosely attached to the fibrous structure of the nonwoven fabric. (Col 1,line 65 to Col.2 line 14).

In view of the disclosures of Woodrum and Akers, there is no apparent reason for one skilled in the art to implement any elements, other than the combination of superabsorbent polymer particles, fibers, and water, and in the ratio as disclosed in the Woodrum reference.

Specifically, there is no indication, other than in the present specification that it would be advantageous to combine a particulate, pre-superabsorbent polymer, fibers, and water, followed by drying the mixture and then mixing the pre-superabsorbent polymer particulate, fibers and neutralization agent as set forth in the present claims.

Akers discloses a web including from about 1 to 50% of superabsorbent polymer **fibers** and 99-50% of less absorbent fibers, but does not disclose a web including from about 1 to 50% of particulate presuperabsorbent polymer. In addition, Akers discloses that one uses superabsorbent polymer fibers in the nonwoven fabric because the superabsorbent polymer fibers become part of the fibrous structure of the nonwoven fabric and contributes towards its cohesive strength, whereas the presence of superabsorbent polymer particles reduces the strength of the nonwoven fabric. (Col. 1, lines 51-63 ) The Examiner asserts that Akers does not preclude the use of particulate SAP. That is not the test.

Hence, there is no teaching, suggestion or motivation, either in the Woodrum or Akers references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the Woodrum reference, or to combine the teachings of the Woodrum and Akers references. Akers specifically teaches away from using superabsorbent polymer particles as set forth in the present claims. In view of this, the Woodrum and Akers references cannot be combined to show the present invention. In view of the foregoing remarks, the rejection of claims 1-6 and 20-22 under 35 U.S.C. §103(a) as obvious over Woodrum in view of Akers should be withdrawn.

***Conclusion***

In light of the amendments and remarks presented herein, Applicants submit that the present application is in condition for allowance, and such action is respectfully requested. If, however, any issues remain unresolved, the Examiner is invited to telephone Applicants' counsel at the number provided below.

Respectfully submitted,

/Philip P. McCann/

Philip P. McCann  
Registration No. 30,919

**Smith Moore LLP**  
P.O. Box 21927  
Greensboro, NC 27420  
(336) 378-5302  
phil.mccann@smithmoorelaw.com

Date: July 6, 2007

File No. 5003073.005US2